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FIG. 1

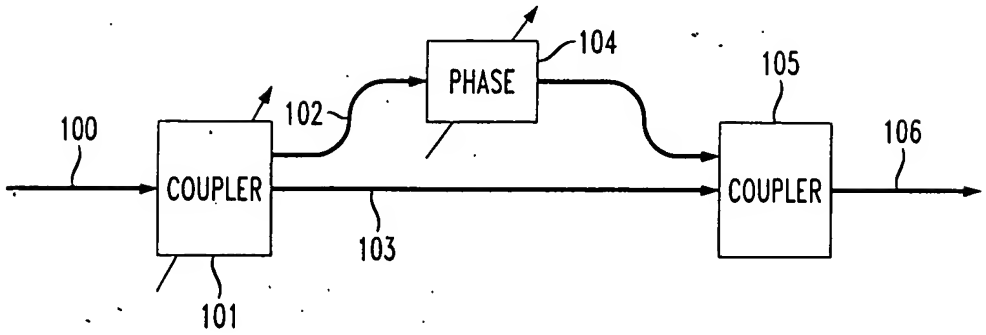


FIG. 2A

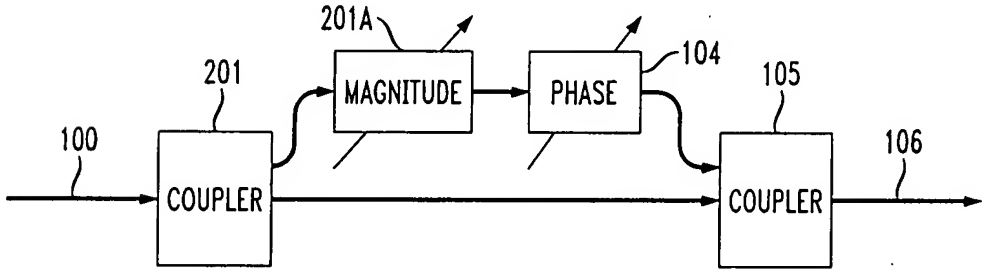


FIG. 2B

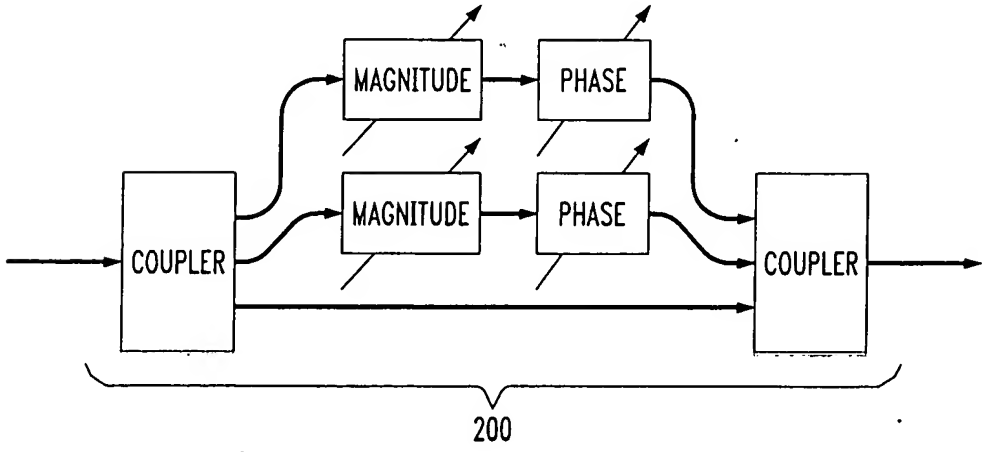
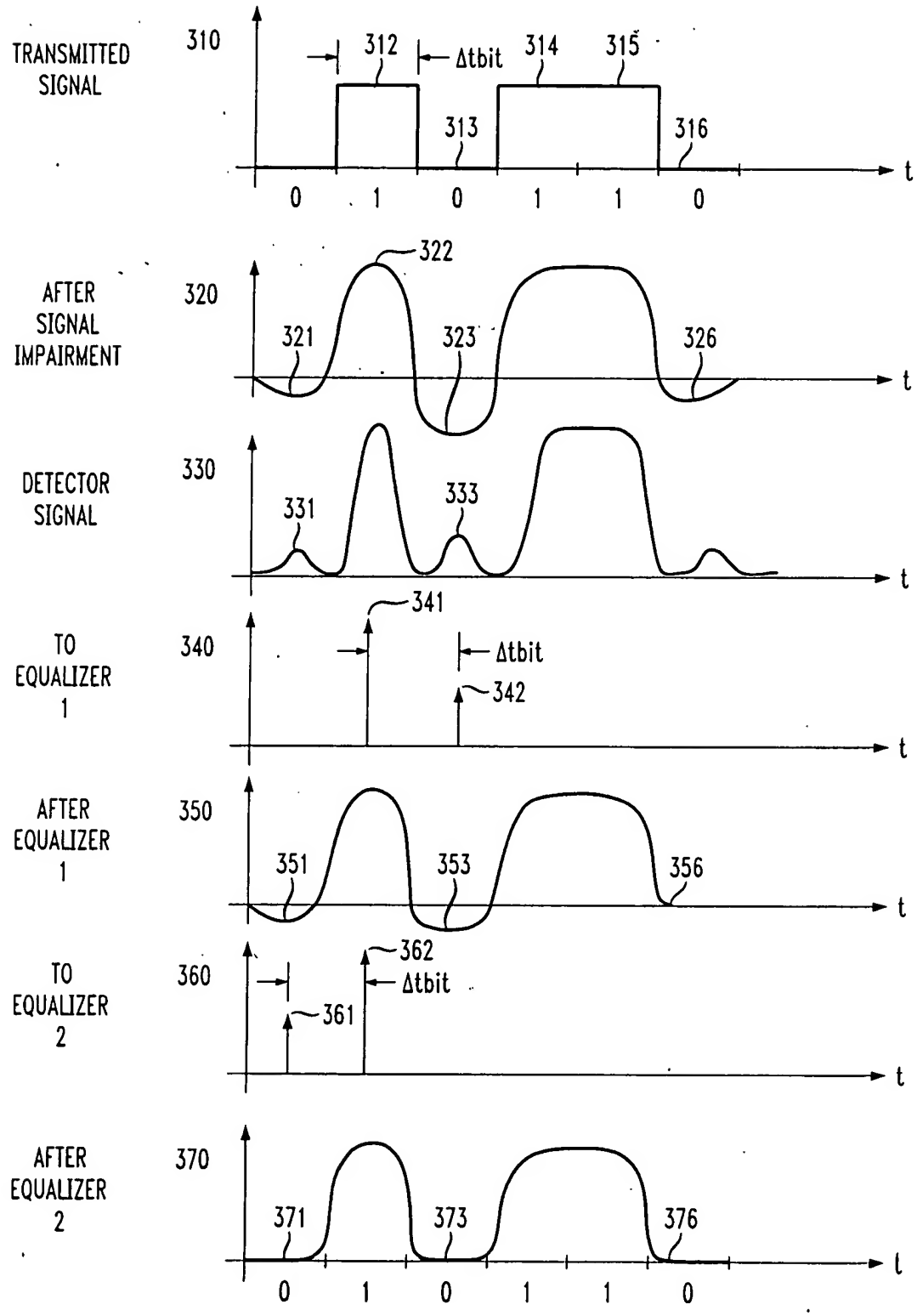


FIG. 3


TRANSMITTED SIGNAL
310
312
Δtbit
314
315
313
316
t
0
1
0
1
1
0
AFTER SIGNAL IMPAIRMENT
320
322
321
323
326
t
DETECTOR SIGNAL
330
331
333
t
TO EQUALIZER 1
340
341
Δtbit
342
t
AFTER EQUALIZER 1
350
351
353
356
t
TO EQUALIZER 2
360
362
Δtbit
361
t
AFTER EQUALIZER 2
370
371
373
376
t
0
1
0
1
1
0

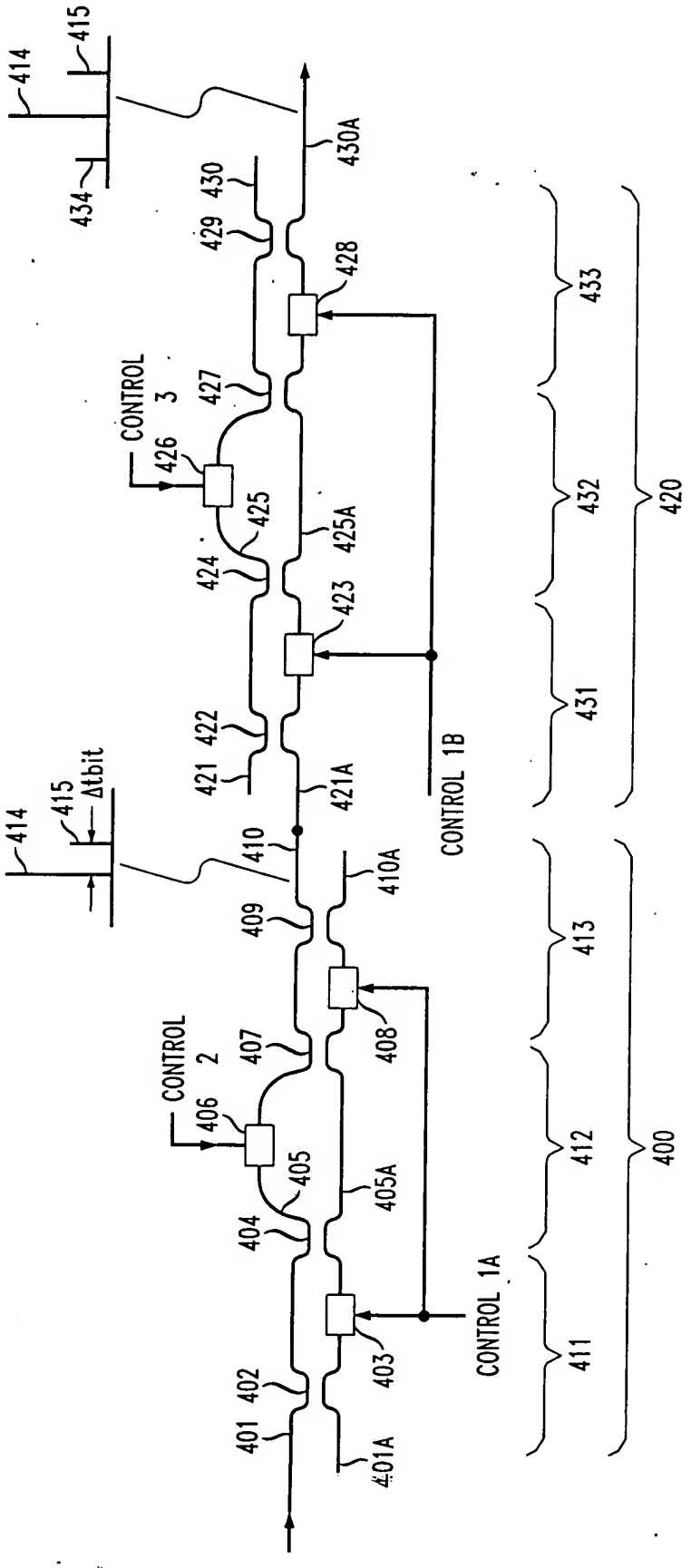

414
415
Δtbit
434
410
410A
409
421
422
421A
CONTROL 1B
423
424
425
425A
426
CONTROL 3
427
428
429
430
430A
CONTROL 2
406
407
408
404
405
405A
CONTROL 1A
403
402
401
401A
411
412
413
431
432
433
420
400

FIG. 4

FIG. 5A

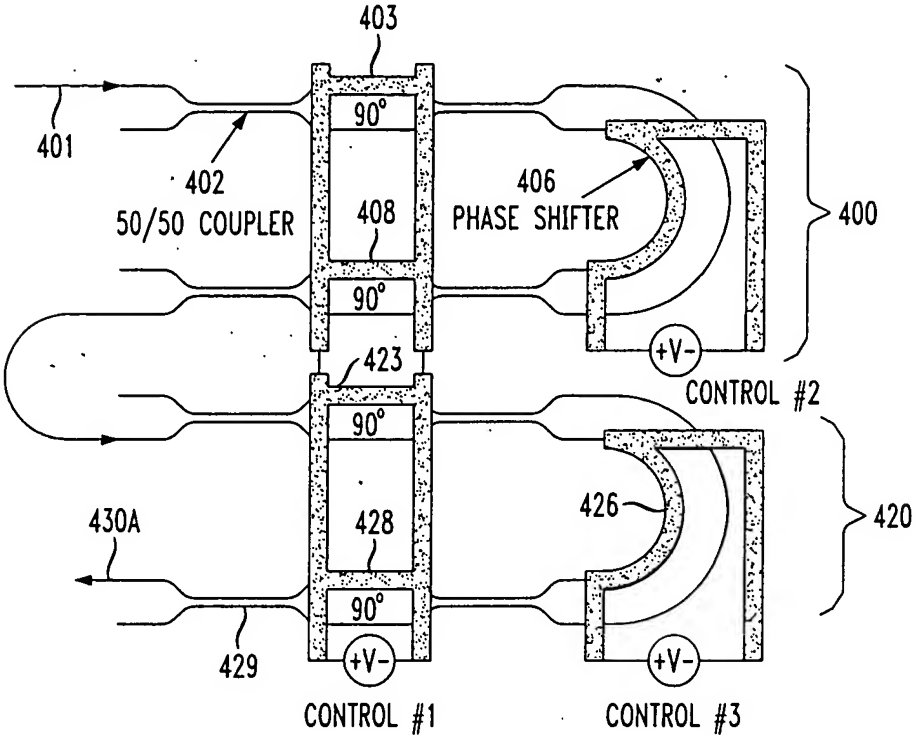

403
401
402
50/50 COUPLER
90°
408
90°
406
PHASE SHIFTER
400
+V-
CONTROL #2
423
90°
426
420
430A
428
90°
429
+V-
+V-
CONTROL #1
CONTROL #3

FIG. 5B

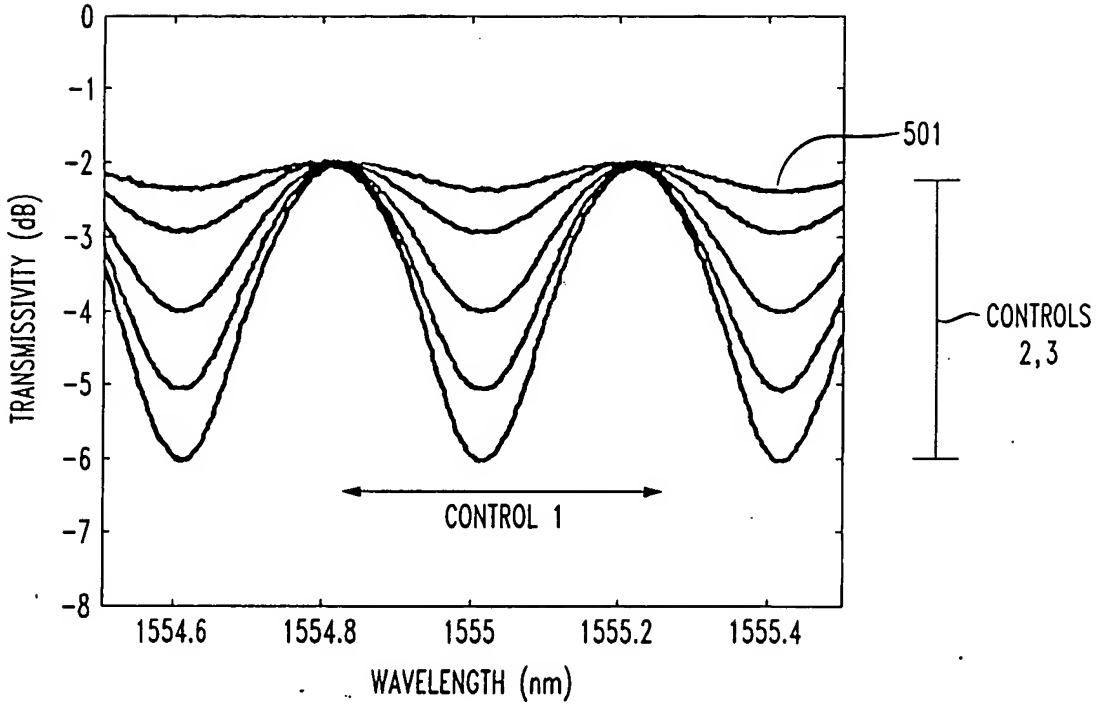

0
-1
-2
-3
-4
-5
-6
-7
-8
TRANSMISSIVITY (dB)
501
CONTROLS
2,3
CONTROL 1
1554.6
1554.8
1555
1555.2
1555.4
WAVELENGTH (nm)

FIG. 6

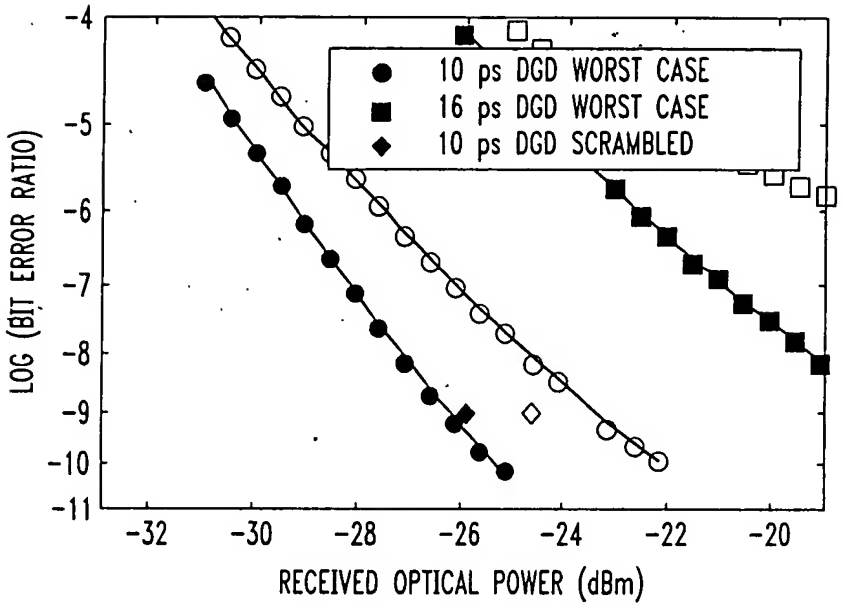

10 ps DGD WORST CASE
16 ps DGD WORST CASE
10 ps DGD SCRAMBLED
LOG (BIT ERROR RATIO)
RECEIVED OPTICAL POWER (dBm)
-4
-5
-6
-7
-8
-9
-10
-11
-32
-30
-28
-26
-24
-22
-20

FIG. 7

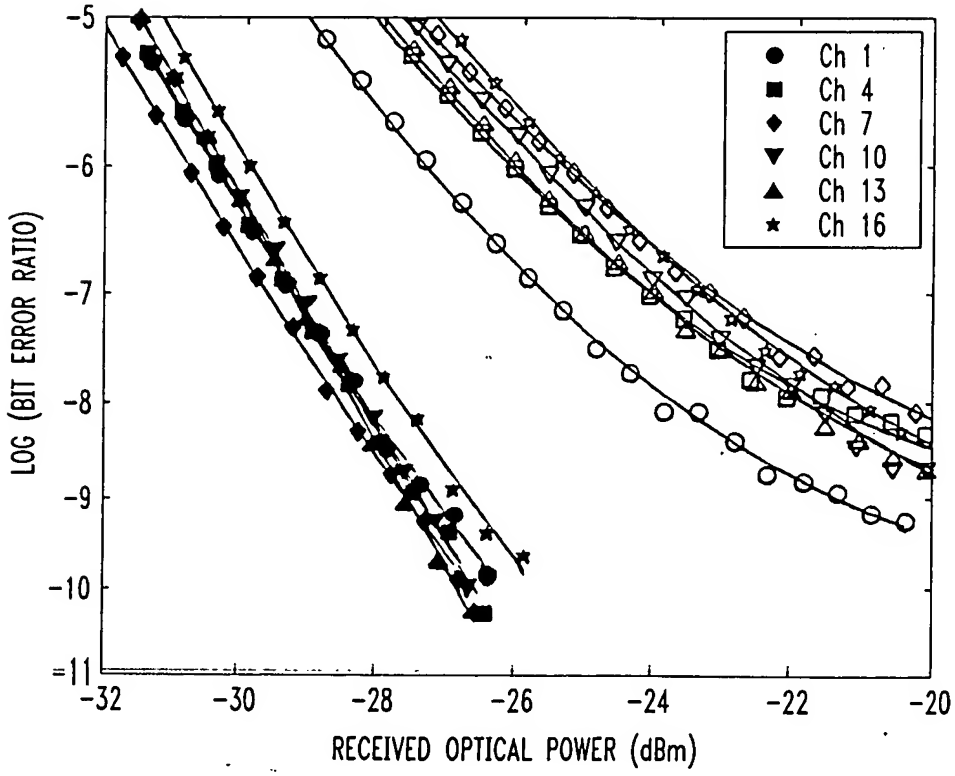

Ch 1
Ch 4
Ch 7
Ch 10
Ch 13
Ch 16
LOG (BIT ERROR RATIO)
RECEIVED OPTICAL POWER (dBm)
-5
-6
-7
-8
-9
-10
-11
-32
-30
-28
-26
-24
-22
-20

FIG. 8A

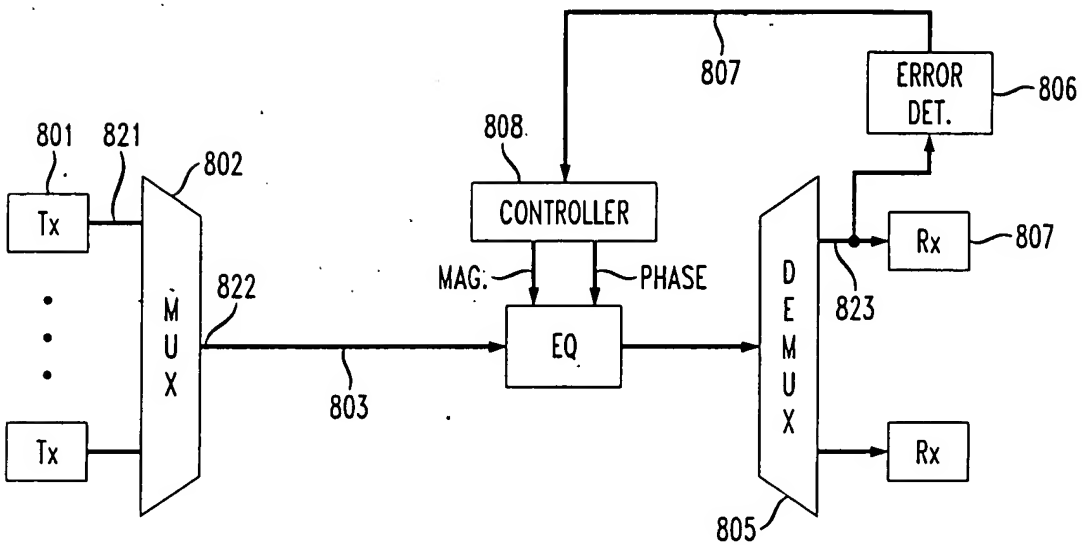

807
ERROR DET.
806
801
821
802
808
CONTROLLER
Tx
Tx
MUX
822
MAG.
PHASE
EQ
803
DEMUX
823
Rx
807
Rx
805

FIG. 8B

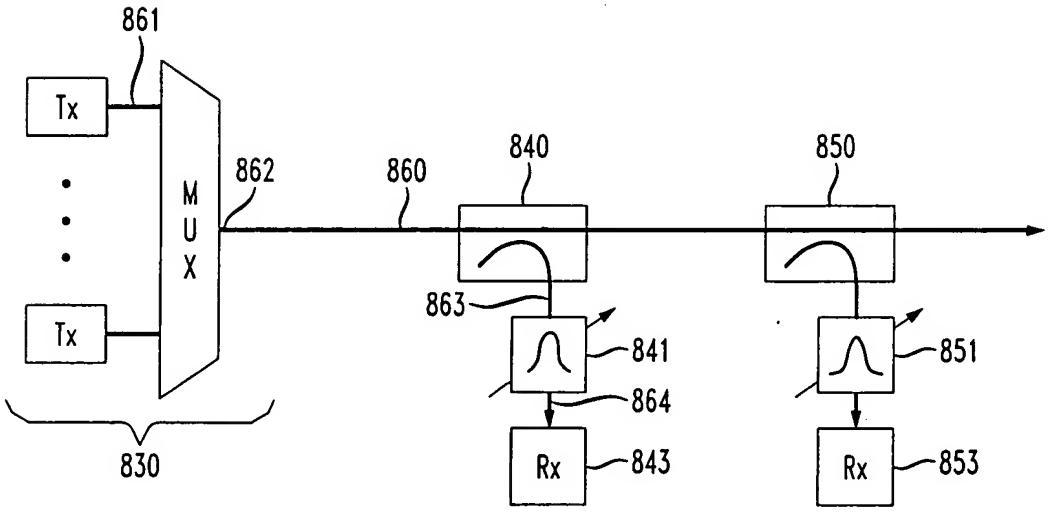

861
Tx
Tx
MUX
862
860
840
850
863
841
851
864
Rx
843
Rx
853
830

FIG. 9

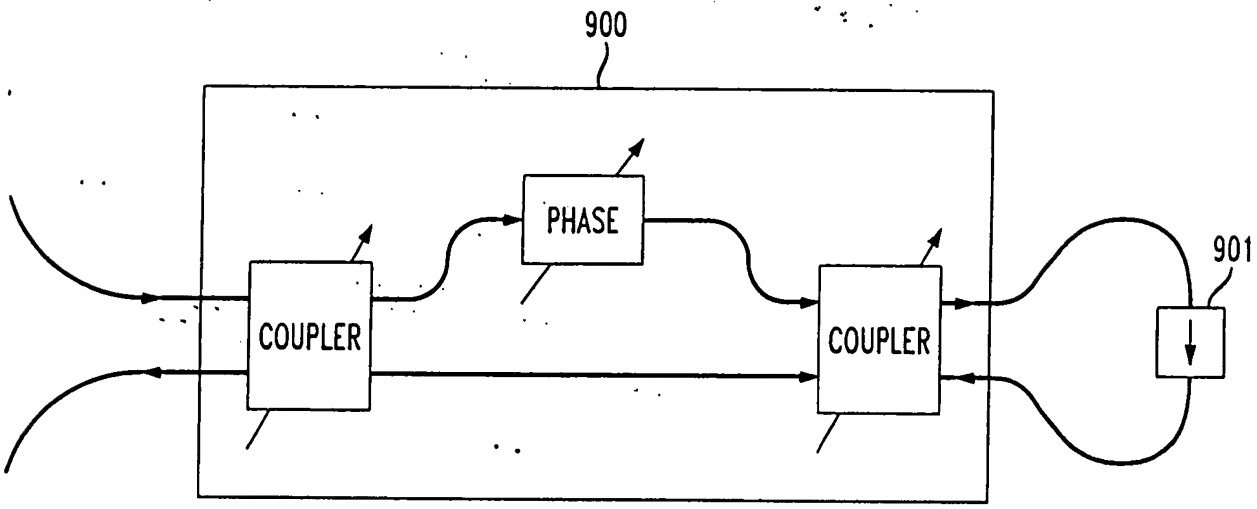

900
PHASE
COUPLER
COUPLER
901

Fig. 10

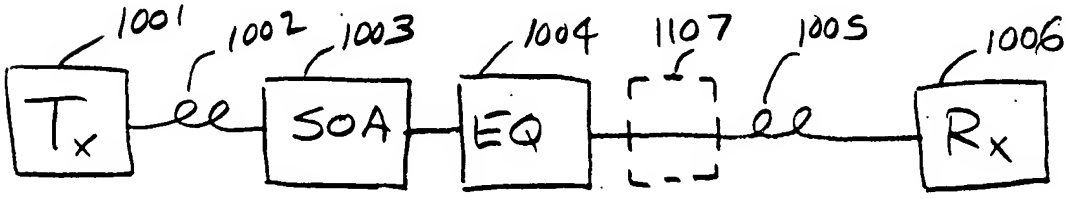

1001
1002
1003
1004
1107
1005
1006
Tx
SOA
EQ
Rx

Fig. 11

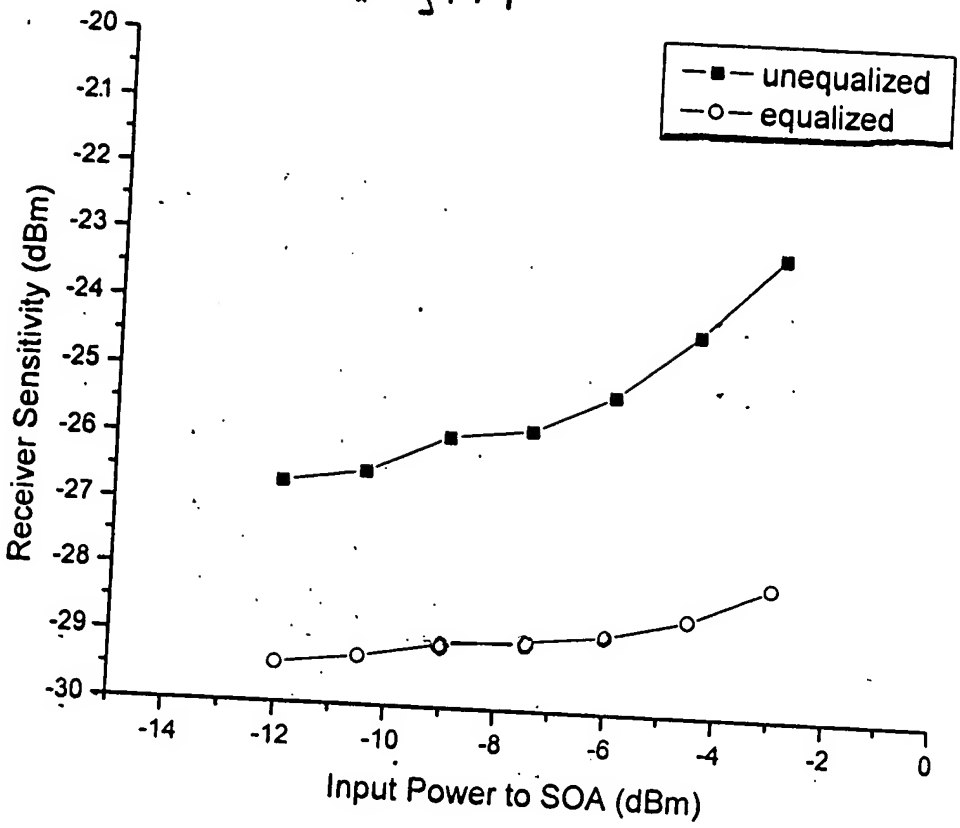
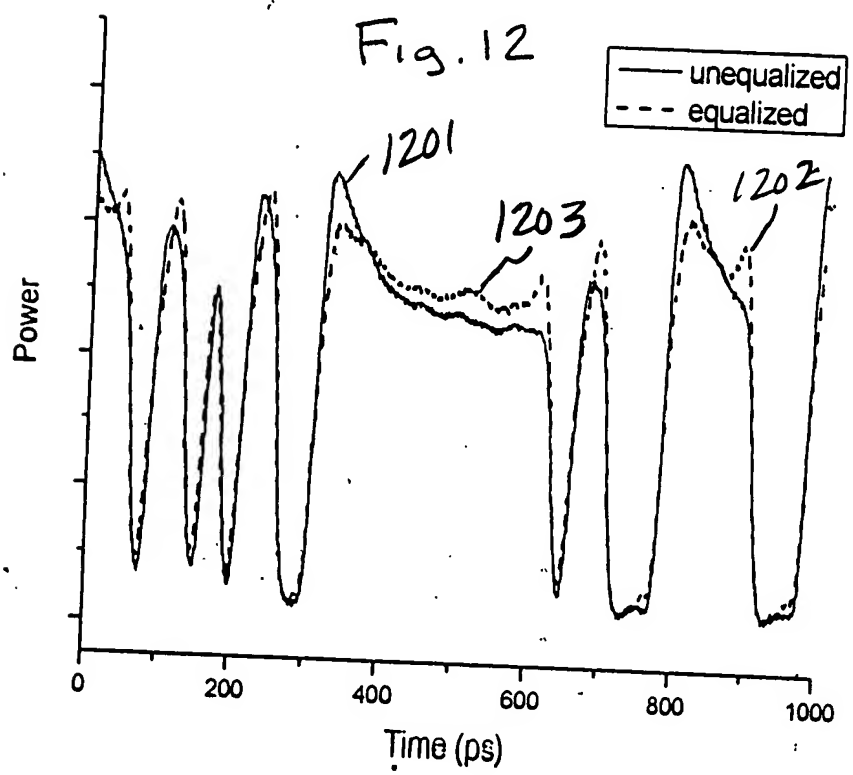

unequalized
equalized
Receiver Sensitivity (dBm)
-20
-21
-22
-23
-24
-25
-26
-27
-28
-29
-30
-14
-12
-10
-8
-6
-4
-2
0
Input Power to SOA (dBm)

Fig. 12


unequalized
equalized
1201
1203
1202
Power
0
200
400
600
800
1000
Time (ps)